

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

STREAM HABITAT IMPROVEMENT AND MANAGEMENT

(Acre)

CODE 395

DEFINITION

Maintain, improve, or restore physical, chemical and biological functions of a stream.

PURPOSES

1. Provide suitable habitat for desired aquatic species and diverse aquatic communities
2. Provide channel morphology and associated riparian characteristics important to desired aquatic species
3. Provide aesthetic values and recreation opportunities associated with stream habitats such as angling and nature appreciation

CONDITIONS WHERE PRACTICE APPLIES

Streams where habitat deficiencies limit survival, growth, reproduction, and/or diversity of aquatic species in relation to the potential of the stream.

CRITERIA

General Criteria Applicable To All Purposes

Adjoining riparian corridors will be managed with diverse vegetation suitable for the site conditions and desired ecological benefits such as stream temperature moderation; recruitment of instream large wood and fine organic debris; input of riparian nutrients and terrestrial insects; stream bank stability; and flood attenuation.

No action shall have adverse impacts on species listed as endangered or threatened by U.S. Fish and Wildlife Service or Texas Parks

and Wildlife Department.

All required permits will be obtained prior to installation of any stream improvement measures.

All activities will occur to minimize disturbances during breeding and nesting seasons of aquatic and terrestrial organisms.

Structures installed using this standard for any of the purposes will not reduce channel capacity to the extent that excessive bank erosion or unintentional lateral migration of flow is induced.

Where practical, stream habitat and channel forming processes such as natural meandering and floodplain functions will be restored or maintained.

Stream habitat management options when implemented should be ecologically integrated.

Instream structure design will be compatible with the dynamic nature of rivers and recreational and other uses of the stream corridor.

When present, livestock will be managed to prevent streambank erosion, bank trampling, over-grazing, and contamination of the stream from livestock waste.

Planned stream habitat improvements will:

1. Be based on an assessment of watershed conditions that affect the physical, biological, and chemical conditions of the stream and its riparian area.
2. Be based on an assessment of current stream and riparian conditions. The assessment shall evaluate channel morphology, geomorphic setting, aquatic species, riparian and/or floodplain

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NRCS, TEXAS

July 2001

conditions, and any habitat limitations including restriction of upstream and downstream movement of aquatic species.

3. Emphasize the establishment of an ecologically self-sustaining stream-riparian-system consistent with the watershed conditions and geomorphic setting.
4. Provide fish passage upstream and downstream and allow movement of other aquatic species and stream organic matter to the extent possible

Additional Criteria Applicable To Purposes 1 and 2

Instream structures will be designed to facilitate establishment and viability of riparian plants.

Structural stream improvement measures applied will be compatible with the stream's geomorphology.

The stream channel being managed under this practice should:

1. Be hydrologically connected to its floodplain and associated wetlands where physically possible and geomorphically appropriate.
2. Reflect sediment transport processes characteristic of the designed stable channel.
3. Have well vegetated banks and a healthy riparian root zone.
4. Have stream bottom substrates suitable for spawning and/or rearing of desired aquatic species

Incorporation of these stream channel criteria will generally involve restoration of an appropriate channel width-to-depth ratio, suitable riffle-pool complexes, well-vegetated banks, and/or stream length-gradient relationships in a meandering stream consistent with local conditions and stream geomorphology.

Additional Criteria Applicable To Purpose 3

Recreational and other land use activities will be managed to minimize impacts on stream corridor vegetation and water quality.

CONSIDERATIONS

Stream habitat management provisions should be planned in relation to other land uses that may impact stream habitat. Before designing and implementing stream habitat improvements, consider the known or expected problems within the watershed, such as: point and non-point source pollution, land management activities, and other watershed-related concerns. Any stream habitat management project is most effective when applied within the context of overall watershed conditions and with clear objectives for stream management goals.

Instream structures may be considered to provide stream stability and/or habitat elements until the channel and adjacent riparian area can function as a habitat of complex stream structure in dynamic equilibrium. There are several options that can be used singularly or in combination to improve stream habitat:

1. Establish soil conservation, nutrient management, pesticide management and other management practices to minimize non-point sources of pollution on a watershed scale.
2. Reduce or manage excessive runoff due to watershed development.
3. Restore or protect riparian and floodplain vegetation and associated riverine wetlands.
4. Maintain suitable flows for aquatic species and channel maintenance.
5. Provide physical habitat components important to aquatic species such as sediment-free spawning sites, boulders, large wood, resting pools, overhead cover, and stable banks.
6. Eliminate fish migration barriers such as improperly installed culverts.
7. Improve floodplain-to-channel connectivity including off-channel habitats.
8. Provide alternative streamside access for recreational use, livestock, and equipment.
9. Restore natural surface water and ground water interactions by managing ground water withdrawals.

ENVIRONMENTAL IMPACT CONCERNS

Stream habitat management will improve aquatic habitats and subsequently benefit listed endangered or threatened species and other native aquatic species dependent on this environment. There may be short-term negative impacts when in-stream construction activities occur, i.e. sedimentation and turbidity. Therefore, timing of project activity is extremely important to reduce adverse impacts.

Consider cultural resources when planning to avoid adverse impacts during installation and maintenance.

PLANS AND SPECIFICATIONS

Plans and specifications shall be in keeping with this standard and shall describe the details adequately to apply the practice to achieve its intended purpose.

OPERATION AND MAINTENANCE

An operation and maintenance plan shall be developed for all applications. The plan shall provide for periodic inspection and prompt repair should the application of practices cause streambank or streambed instability. All instream structural measures shall be evaluated on an annual basis.

REFERENCES

- _____. 2001. Stream corridor inventory and assessment techniques – a guide to site, project and landscape approaches suitable for local conservation programs. Technical Report, Watershed Science Institute, USDA-NRCS.
- _____. 1999. Assessing conditions of riparian-wetland corridors at the area-wide level. Technical Report, Watershed Science Institute, USDA-NRCS.
- _____. 1998. A user guide to assessing proper functioning condition and supporting science for lotic areas. Technical Reference 1737-15, USDI-BLM.
- _____. 1998. Stream corridor restoration: principles, processes, and practices. Federal Interagency Stream Restoration Working Group, Stream Corridor Restoration Handbook.

_____. 1998. Stream visual assessment protocol. Technical Note 99-1, National Water and Climate Center, USDA-NRCS.

_____. 1993. Process for assessing proper functioning condition. Technical Reference 1737-9, USDI-BLM.

Johnson, C.W. 1999. Conservation corridor planning at the landscape level: managing for wildlife habitat. USDA-NRCS, National Biology Handbook, Part 190.

APPROVAL

/s Gary Valentine

State Wildlife Biologist

July 16, 2001

Date

STATEMENT OF NEED

This practice is needed in the

FOTG

Natural Resource Manager

Date

NRCS, TEXAS

July 2001

CERTIFICATION

Reviewed and determined adequate without
need for revision

Zone Wildlife Biologist

Date

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Date

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Date

Zone Wildlife Biologist

Date

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Date